AMENDMENT TO THE CLAIMS

Claims 1-17 (cancelled)

18. (currently amended) A method for determining cable resistance of wiring of an electrical system of a vehicle which includes a battery, a load, and a first cable connecting a first side of the battery to a first side of the load~~.~~, and a second cable connecting a second side of the battery to a second side of the load, comprising:

coupling a first Kelvin connector to the first side of the load of the vehicle, the first Kelvin connector having a first connector and a second connector;

coupling a second Kelvin connector to the second side of the load of the vehicle, the second Kelvin connector having a third connector and a fourth connector;

coupling a first voltage sensor connector to the first side of the battery of the vehicle;

coupling a second voltage sensor connector to the second side of the battery of the vehicle;

applying a forcing function between the first connector of the first Kelvin connector and the third connector of the second Kelvin connector;

measuring a first parameter of the electrical system between the second connector of the first Kelvin ~~connection~~ connector ~~to the electrical system~~ and the second ~~Kelvin~~voltage sensor connector ~~connection to the electrical system~~in response to the applied forcing function;

measuring a second parameter of the electrical system between the first voltage sensor connector ~~connected to the electrical system~~ and the second voltage sensor connector in response to the applied forcing function~~Kelvin connection to the electrical system~~; ~~and~~

measuring a third parameter of the electrical system between the fourth connector of the second Kelvin connector and the second voltage sensor connector in response to the applied forcing function;

measuring a fourth parameter of the electrical system between the first voltage sensor connector and the second voltage sensor connector in response to the applied forcing function;

determining the cable resistance of the first cable as ~~wiring of the electrical system between the second Kelvin connection and the first side of the battery as~~ a function of the first parameter and the second parameter; and

determining the cable resistance of the second cable as a function of the third parameter and the fourth parameter.

19. (cancelled)

20. (original) The method of claim 18 wherein the first and second parameters comprise dynamic parameters.

21. (currently amended) The method of claim 18 wherein the ~~including applying a~~ forcing function comprises a time varying signal ~~and wherein the first and second parameters are measured in response to the forcing function~~.

22. (currently amended) The method of claim ~~21~~18 wherein the forcing function comprises an active forcing function.

23. (currently amended) The method of claim ~~21~~18 wherein the forcing function comprises a passive forcing function.

24. (cancelled)

25. (cancelled)

26. (cancelled)

27. (previously presented) The method of claim 18 wherein the cable resistance is determined in accordance with the equation:

$$R_1 = F[P(C,D'), P(C',D')]$$

Where C, C' and D' are points on the electrical system.

28. (cancelled)

29. (original) The method of claim 18 wherein the first and second parameters are indicative of a cold cranking amps (CCA) measurement.

30. (currently amended) The method of claim 18 including providing an output related to the ~~cable resistance parameter~~first and second cable resistances.

31. (original) The method of claim 30 wherein the output is provided to an operator.

32. (original) The method of claim 30 wherein the output is provided to electrical circuitry.

33. (original) The method of claim 30 wherein the output comprises a pass/fail output.

34. (original) The method of claim 30 wherein the output is indicative of a voltage drop for a particular current through the electrical system.

35. (cancelled)

36. (currently amended) An apparatus for determining cable resistance of wiring of an electrical system of a vehicle which includes a battery, a load, and a first cable connecting a first side of the battery to a first side of the load~~,~~, and a second cable connecting a second side of the battery to a second side of the load, comprising:

a first Kelvin connector to couple the first side of the load, the first Kelvin connector having a first connector and a second connector;

a second Kelvin connector to couple the second side of the load, the second Kelvin connector having a third connector and a fourth connector;

a first voltage sensor connector to couple the first side of the battery;

a second voltage sensor connector to couple to the second side of the battery; and

measurement circuitry configured to measure a first parameter of the electrical system between the second connector of the first Kelvin connector~~connection to the electrical system~~ and the second voltage sensor connector in response to the applied forcing function~~Kelvin connection to the electrical system~~, measure a second parameter of the electrical system between the first voltage sensor connector~~connected to the electrical system~~ and the second voltage sensor connector in response~~Kelvin connection~~ to the ~~electrical system~~applied forcing function, measure a third parameter of the electrical system between the fourth connector of the second Kelvin connector and the second voltage sensor connector in response to the

applied forcing function, measure a fourth parameter of the electrical system between the first voltage sensor connector and the second voltage sensor connector in response to the applied forcing function,~~;~~ and responsively determine the cable resistance of the first cable~~wiring of the electrical system between the second Kelvin connection and the first side of the battery~~ as a function of the first parameter and the second parameter~~.~~, and determine the cable resistance of the second cable as a function of the third parameter and the fourth parameter.

37. (cancelled)

38. (previously presented) The apparatus of claim 36 wherein the first and second parameters comprise dynamic parameters.

39. (currently amended) The apparatus of claim 36 wherein the ~~first and second parameters are measured in response to a~~ forcing function comprises a time varying signal.

40. (currently amended) The apparatus of claim ~~39~~36 wherein the forcing function comprises an active forcing function.

41. (currently amended) The apparatus of claim ~~39~~36 wherein the forcing function comprises a passive forcing function.

42. (previously presented) The apparatus of claim 36 wherein the cable resistance is determined in accordance with the equation:

$$R_1 = F[P(C,D'), P(C',D')]$$

Where C, C' and D' are points on the electrical system.

43. (cancelled)

44. (previously presented) The apparatus of claim 36 wherein the first and second parameters are indicative of a cold cranking amps (CCA) measurement.

45. (previously presented) The apparatus of claim 36 including an output configured to provide an output related to the cable resistance.

46. (previously presented) The apparatus of claim 45 wherein the output comprises an output to an operator.

47. (previously presented) The apparatus of claim 45 wherein the output comprises an output to electrical circuitry.

48. (previously presented) The apparatus of claim 45 wherein the output comprises a pass/fail output.

49. (previously presented) The apparatus of claim 45 wherein the output is indicative of a voltage drop for a particular current through the electrical system.